

**SOLICITED PROPOSAL APPLICATION FOR SPACE LIFE SCIENCES**

IN RESPONSE TO ANNOUNCEMENT NRA-99-HEDS-01

LEAVE BLANK

NUMBER

REVIEW GROUP

DATE RECEIVED

PLEASE FOLLOW INSTRUCTIONS CAREFULLY

1. COMPLETE TITLE OF PROJECT

2. PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR (First, middle, and last name; degrees; position)

3. COMPLETE MAILING ADDRESS

Internal Mail Code or Location  
Office or Organization Division  
Agency/Center, Company, or Institution  
Street or P.O. Box  
City, State Zip Code

4. TELEPHONE NUMBER  
(area code, number, extension)

FAX NUMBER  
E-MAIL ADDRESS

5. CONGRESSIONAL DISTRICT (U.S. ONLY)

6. SOCIAL SECURITY # (U.S. ONLY)

7. THIS PROPOSAL IS: ☐ NEW ☐ RENEWAL ☐ REVISED

8. HAS THIS PROPOSAL (OR SIMILAR REQUEST) BEEN SUBMITTED TO ANY OTHER AGENCY?

☐ No ☐ Yes IF YES, SPECIFY AGENCY AND YEAR SUBMITTED:

9. HUMAN SUBJECTS

9a. ☐ No ☐ Yes

9b. Exemption # or IRB Approval Date:

9c. Assurance of Compliance #:

10. VERTEBRATE ANIMALS

10a. ☐ No ☐ Yes

10b. ACUC Approval Date:

10c. PHS Animal Welfare Assurance #:

11. CO-INVESTIGATORS (First, middle, and last name; degrees)

12. CO-INVESTIGATOR'S ORGANIZATION

13. DATES OF ENTIRE PROPOSED  
PROJECT PERIOD

From:  
Through:

14. COSTS REQUESTED FOR FIRST  
12-MONTH BUDGET PERIOD

14a. Direct Costs 14b. Total Costs

15. COSTS REQUESTED FOR ENTIRE  
PROPOSED PROJECT PERIOD

15a. Direct Costs 15b. Total Costs

16. APPLICANT ORGANIZATION (Organization Name)

17. TYPE OF ORGANIZATION (U.S. ONLY)

☐ Non Profit ☐ For Profit (General) ☐ For Profit (Small Business) ☐ Public, Specify: ☐ Federal ☐ State ☐ Local18. ORGANIZATION OFFICIAL TO BE NOTIFIED IF AN AWARD IS  
MADE (Name, title, address, and telephone number)19. OFFICIAL SIGNING FOR APPLICANT  
ORGANIZATION (Name, title, and telephone number)

20. PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR ASSURANCE:

I agree to accept responsibility for the scientific conduct of the project and to provide the required progress reports if a grant is awarded as a result of this application. Willful provision of false information is a criminal offense (U.S. Code, Title 18, Section 1001).

SIGNATURE OF PERSON NAMED IN 2  
(In ink; "Per" signature not acceptable.)

DATE

21. CERTIFICATION AND ACCEPTANCE: By submitting the proposal identified in this Cover Sheet/Proposal Summary in response to NRA 99-HEDS-01, the Authorizing Official of the proposing institution (or the individual proposer if there is no proposing institution):  
1) certifies that the statements made in this proposal are true and complete to the best of his/her knowledge; 2) agrees to accept the obligations to comply with the sponsoring agency award terms and conditions if an award is made as a result of this proposal; and 3) if the applicant organization is an entity of the United States of America, confirms compliance with all provisions, rules, and stipulations set forth in the three Certifications contained in this NRA (namely, i) Certification Regarding Debarment, Suspension, and Other Responsibility Matters Primary Cover Transactions, ii) Certification Regarding Lobbying, and iii) Certification of Compliance with the NASA Regulations Pursuant to Nondiscrimination in Federally Assisted Programs]. Willful provision of false information in this proposal and/or its supporting documents, or in reports required under an ensuing award, is a criminal offense (U.S. Code, Title 18, Section 1001).

SIGNATURE OF PERSON NAMED IN 19  
(or person named in 2, if there is no proposing institution)  
(In ink; "Per" signature not acceptable.)

DATE

## PROPOSAL ABSTRACT

**Principal Investigator:**

**Co-Investigators:**

**Proposal Title:**

### Abstract

Prepare a brief description of the application stating the broad, long-term objectives and specific aims of the proposed work. Describe concisely the research design and methods for achieving these objectives and aims. This abstract is meant to serve as a succinct and accurate description of the proposed work when separated from this application. Limit abstract to 300 words or fewer.

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### Research Emphasis:

Check the box next to the research emphasis that is most closely aligned with your proposal.

#### Space Human Factors Engineering

- |                                   |                          |   |                          |
|-----------------------------------|--------------------------|---|--------------------------|
| Safety                            | <input type="checkbox"/> | Microbial monitoring using methods based on | <input type="checkbox"/> |
| Habitability and work environment | <input type="checkbox"/> | integrated biology/solid state devices      | <input type="checkbox"/> |
| Tools and equipment               | <input type="checkbox"/> | Technologies for sample acquisition         | <input type="checkbox"/> |
| Workload and task characteristics | <input type="checkbox"/> | and preparation                             | <input type="checkbox"/> |
| Mission Support                   | <input type="checkbox"/> | Other                                       | <input type="checkbox"/> |
| Maintenance and logistics         | <input type="checkbox"/> |   |                          |
| Other                             | <input type="checkbox"/> |   |                          |

#### Advanced Environmental Monitoring and Control

- |  |                          |   |                          |
|--|--------------------------|---|--------------------------|
| Sensors for <i>in situ</i> monitoring of water quality | <input type="checkbox"/> | Advanced Life Support                     |                          |
|  |                          | Solid waste processing/resource recovery  | <input type="checkbox"/> |
|  |                          | from solid wastes                         | <input type="checkbox"/> |
|  |                          | Food processing methods (for ALS-produced | <input type="checkbox"/> |
|  |                          | crops, post-harvest to table)             | <input type="checkbox"/> |
|  |                          | Other                                     | <input type="checkbox"/> |

**SPACE FLIGHT EXPERIMENT PRELIMINARY DESCRIPTION FORM**

This following form must be completed by all investigators proposing flight experiments. This form should be inserted into the Project Description section of the proposal. (Provide responses on additional sheets, as necessary.)

**Principal Investigator:**

**Proposal Title:**

**Type of Flight Experiment:** ☐ **Short Duration**    ☐ **Long Duration**    ☐ **Pre/Post-Flight**

- (1) Briefly describe the protocol for your experiment, focusing on its functional requirements. In particular, note any functional requirements which appear to be outside of those described in Section 3.0 of the *Standard Companion Document*.
- (2) If humans are required as subjects for the proposed investigation, please list:
  - a) number of subjects
  - b) special subject restrictions, such as specific dietary regimens or fluid intake regulation, work/rest cycles or exercise
  - c) physiological variables to be measured
  - d) how soon would access to the crew be necessary for data collection (i.e., preflight, inflight, or postflight)
- (3) If non-humans are required for the proposed investigation, please list:
  - a) scientific name of species and common name
  - b) gender, strain, age, stage, and weight (if applicable)
  - c) minimum number required, desired number, and a rationale for both
  - d) special restrictions for maintenance or manipulation of the specimens (i.e. special facilities, data collection, environmental limits such as air composition, humidity, temperature, illumination)
  - e) requirements for ground control experiments
- (4) Describe the experimental inflight activities that the crew would be directly involved with and estimate the amount of crew time required to complete these activities.
- (5) Will scientific objectives be met with a single flight or with multiple flights?
- (6) Requirements for Shuttle loading and unloading:
  - a) How long before a launch can your experiment be loaded into the Shuttle?
  - b) Do you need to remove the experiment and/or specimens within a certain time period after landing? If so, please specify requirement.
- (7) Identify potentially hazardous materials, including biowaste and radioactive materials.
- (8) For long duration experiments, estimate the maximum and minimum number of days of microgravity exposure required.
- (9) On long duration flights, are there any requirements for resupply of scientific equipment, supplies, or samples?
- (10) On long duration flights, are there any requirements which would limit the ability to store samples for long periods of time [i.e., maximum duration post fixation or freezing when analysis must be performed]? Is there a requirement for continuous, uninterrupted power?

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Record responses on additional sheets

Principal Investigator: \_\_\_\_\_

**BIOGRAPHICAL SKETCH**

Provide the following information for the key personnel.  
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
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EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training).

INSTITUTION(S) AND LOCATION	DEGREE(S) (if applicable)	YEAR(S)	FIELD(S) OF STUDY

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

OTHER SUPPORT

On a separate page, please provide information regarding specific sources of other support for the principal investigator and each co-investigator (not consultants). The information should be provided separately for each individual in the format shown below. Please list all active support for an individual before listing pending support. Include the label "Form E" and the principal investigator's name at the top of each page and number pages consecutively.

NAME OF INDIVIDUAL		
ACTIVE/PENDING		
Project Number (Principal Investigator)	Dates of Approved/Proposed Project	Percent Effort
Source	Annual Direct Costs	
Title of Project (or Subproject)		
One sentence description of project goals. (The major goals of this project are...)		
Brief description of potential scientific or commitment overlap with respect to this individual between this application and projects described above(summarized for each individual).		

Principal Investigator/Program Director: \_\_\_\_\_

DETAILED BUDGET FOR 12-MONTH BUDGET PERIOD DIRECT COSTS ONLY		FROM		THROUGH	
Complete this form for the first year of grant support requested					
PERSONNEL (Applicant Organization Only)		FUNDING AMOUNT REQUESTED			
NAME	ROLE IN PROJECT	EFFORT ON PROJECT	SALARY	FRINGE BENEFITS	TOTALS
	Principal Investigator				
SUBTOTALS →					
SUBCONTRACTS					
CONSULTANT COSTS					
EQUIPMENT (Itemize, use additional sheet if needed)					
SUPPLIES (Itemize by category, use additional sheet if needed)					
TRAVEL	DOMESTIC				
	NON-DOMESTIC				
OTHER EXPENSES (Itemize by category, use additional sheet if needed)					
TOTAL DIRECT COSTS FOR FIRST 12-MONTH BUDGET PERIOD (Item 14a, Form A)					
INDIRECT COSTS FOR FIRST 12-MONTH BUDGET PERIOD					
TOTAL COST FOR FIRST 12-MONTH BUDGET PERIOD (Item 14b, Form A)					

Principal Investigator/Program Director: \_\_\_\_\_

BUDGET FOR ENTIRE PROJECT PERIOD DIRECT COSTS ONLY				
BUDGET CATEGORY TOTALS		1 <sup>st</sup> BUDGET PERIOD	ADDITIONAL YEARS OF SUPPORT REQUESTED	
			2 <sup>nd</sup>	3 <sup>rd</sup>
PERSONNEL (Salary and Fringe Benefits) (Applicant organization only)				
SUBCONTRACTS				
CONSULTANT COSTS				
EQUIPMENT				
SUPPLIES				
TRAVEL	DOMESTIC			
	NON-DOMESTIC			
OTHER EXPENSES				
TOTAL DIRECT COSTS FOR EACH PERIOD				
TOTAL INDIRECT COSTS FOR EACH PERIOD				
TOTAL DIRECT + INDIRECT COSTS FOR EACH PERIOD				
TOTAL DIRECT + INDIRECT COSTS FOR ENTIRE PROJECT				

JUSTIFICATION FOR UNUSUAL EXPENSES (Detail Justification in Cost Section of Proposal)

**CHECKLIST FOR PROPOSERS**

This checklist should be annotated to indicate that the stated items have been included in the proposal package.

Principal Investigator/Program Director:

- |   |   |
|---|---|
| <input type="checkbox"/> Form A: Solicited Proposal Application*                                      | <input type="checkbox"/> Form E: Other Support  |
| <input type="checkbox"/> Form B: Proposal Abstract  | <input type="checkbox"/> Facilities and Equipment Description                               |
| <input type="checkbox"/> Title Page   | <input type="checkbox"/> IRB or ACUC letter/form (if applicable)*                           |
| <input type="checkbox"/> Project Description Preface (if applicable)                                  | <input type="checkbox"/> Form F: Detailed 12 Month Budget (1 <sup>st</sup> year of support) |
| <input type="checkbox"/> Project Description  | <input type="checkbox"/> Form G: Summary Budget Form  |
| <input type="checkbox"/> Form C: Space Flight Experiment Preliminary Description Form (if applicable) | <input type="checkbox"/> Supporting Budgetary Information                                   |
| <input type="checkbox"/> Management Approach  | <input type="checkbox"/> Appendices, if any   |
| <input type="checkbox"/> Letter of Assurance of Foreign Support (if applicable)                       | <input type="checkbox"/> 25 copies of all material listed above                             |
| <input type="checkbox"/> Form D: Biographical Sketches  |   |

\* One signed original required

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Only one copy of the following needs to be submitted:

- ☐ 3.5 inch computer diskette
- ☐ Form H: This checklist indicates all applicable items have been enclosed.



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**CERTIFICATION REGARDING  
DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS  
PRIMARY COVERED TRANSACTIONS**

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This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 14 CFR Part 1269.

A. The applicant certifies that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three-year period preceding this application been convicted or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or Local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or Local) with commission of any of the offenses enumerated in paragraph A.(b) of this certification; and
- (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or Local) terminated for cause or default; and

B. Where the applicant is unable to certify to any of the statements in this certification, he or she shall attach an explanation to this application.

C. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lowered Tier Covered Transactions (Subgrants or Subcontracts)

- (a) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principles is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department of agency.
- (b) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**This page has been included for your information. Do not submit this page with your application. Item 21 of Form A satisfies the requirement of compliance with the provisions, rules, and stipulations described on this page.**

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## CERTIFICATION REGARDING LOBBYING

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As required by S 1352 Title 31 of the U.S. Code for persons entering into a grant or cooperative agreement over \$100,000, the applicant certifies that:

- (a) No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, in connection with making of any Federal grant, the entering into of any cooperative, and the extension, continuation, renewal, amendment, or modification of any Federal grant or cooperative agreement;
- (b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting an officer or employee of any agency, Member of Congress, an or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete Standard Form - LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subgrants, contracts under grants and cooperative agreements, and subcontracts), and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by S1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

**This page has been included for your information. Do not submit this page with your application. Item 21 of Form A satisfies the requirement of compliance with the provisions, rules, and stipulations described on this page.**

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## **CERTIFICATION OF COMPLIANCE WITH THE NASA REGULATIONS PURSUANT TO NONDISCRIMINATION IN FEDERALLY ASSISTED PROGRAMS**

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The (Institution, corporation, firm, or other organization on whose behalf this assurance is signed, hereinafter called "Applicant") hereby agrees that it will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), Title IX of the Education Amendments of 1962 (20 U.S. 1680 et seq.), Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S. 794), and the Age Discrimination Act of 1975 (42 U.S. 16101 et seq.), and all requirements imposed by or pursuant to the Regulation of the National Aeronautics and Space Administration (14 CFR Part 1250) (hereinafter called "NASA") issued pursuant to these laws, to the end that in accordance with these laws and regulations, no person in the United States shall, on the basis of race, color, national origin, sex, handicapped condition, or age be excluded from participating in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives federal financial assistance from NASA; and hereby give assurance that it will immediately take any measure necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of federal financial assistance extended to the Applicant by NASA, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant for the period during which the federal financial assistance is extended to it by NASA.

This assurance is given in consideration of and for the purpose of obtaining any and all federal grants, loans, contracts, property, discounts, or other federal financial assistance extended after the date hereof to the Applicant by NASA, including installment payments after such date on account of applications for federal financial assistance which were approved before such date. The Applicant recognized and agrees that such federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and the United States shall have the right to seek judicial enforcement of this assurance. His assurance is binding on the Applicant, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign on behalf of the Applicant.

**This page has been included for your information. Do not submit this page with your application. Item 21 of Form A satisfies the requirement of compliance with the provisions, rules, and stipulations described on this page.**